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10/678,989	10/02/2003	Gi Youl Kim	40004551-0012-002	1554
26263 7590 03/21/2008 SONNENSCHN NATH & ROSENTHAL LLP P.O. BOX 061080 WACKER DRIVE STATION, SEARS TOWER CHICAGO, IL 60606-1080				
EXAMINER				
ZERVIGON, RUDY				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/678,989

Applicant(s)

KIM ET AL.

Examiner

Rudy Zervigon

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-9 and 22-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-9 and 22-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 22-are rejected under 35 U.S.C. 102(b) as being anticipated by van Os; Ron et al. (US 5792272 A). van Os teaches a gas delivery system (Figure 1; column 3; lines 30-67), comprising: a cleaning gas (column 4, lines 18-31) source (76; Figure 4) fluidly coupled via a cleaning gas (column 4, lines 18-31) plumbing (58; Figure 4; column 7; lines 18-56) arrangement to one or more cleaning gas (column 4, lines 18-31) distribution channels (54,56; Figure 4; column 7; lines 18-56) disposed within a lid (10+17+40-15; Figure 2,3a,4; column 3; lines 18-67) of a processing chamber (16; Figure 2,4; column 3; lines 18-67), the lid (10+17+40-15; Figure 2,3a,4; column 3; lines 18-67) being supported by walls of the processing chamber (16; Figure 2,4; column 3; lines 18-67), each of the one or more cleaning gas (column 4, lines 18-31) distribution channels (54,56; Figure 4; column 7; lines 18-56) having a respective cross-section and each being located around a periphery of the lid (10+17+40-15; Figure 2,3a,4; column 3; lines 18-67) of the processing chamber (16; Figure 2,4; column 3; lines 18-67); a plurality, of cleaning gas (column 4, lines 18-31) injection ports (44a, 44b; Figure 4; column 7; lines 18-56) distributed around the lid (10+17+40-15; Figure 2,3a,4; column 3; lines 18-67) of the processing chamber (16; Figure 2,4; column 3; lines 18-67), each of the cleaning gas (column 4, lines 18-31) injection ports (44a, 44b; Figure 4; column 7; lines 18-56) having a respective

cross-section that is smaller than each of the respective cross-sections of the one or more cleaning gas (column 4, lines 18-31) distribution channels (54,56; Figure 4; column 7; lines 18-56), each of the cleaning gas (column 4, lines 18-31) injection ports (44a, 44b; Figure 4; column 7; lines 18-56) in fluid communication with one of the one or more cleaning gas (column 4, lines 18-31) distribution channels (54,56; Figure 4; column 7; lines 18-56) and each oriented at one or a respective one or more angles with respect to the walls of the processing chamber (16; Figure 2,4; column 3; lines 18-67), the cleaning gas (column 4, lines 18-31) injection ports (44a, 44b; Figure 4; column 7; lines 18-56) collectively arranged so as to deliver a greater concentration of cleaning gas (column 4, lines 18-31) towards cooler elements of the processing chamber (16; Figure 2,4; column 3; lines 18-67) than towards warmer elements of the processing chamber (16; Figure 2,4; column 3; lines 18-67) during cleaning processes; and processing gas plumbing (32a,32b; Figure 3a) arrangements fluidly coupled to a processing gas distribution showerhead (15, Figure 3a) within the processing chamber (16; Figure 2,4; column 3; lines 18-67) and supported by but separate (compare with Applicant's Figure 1) from the lid (10+17+40-15; Figure 2,3a,4; column 3; lines 18-67) of the processing chamber (16; Figure 2,4; column 3; lines 18-67), the processing gas plumbing (32a,32b; Figure 3a) arrangement being separate from the cleaning gas (column 4, lines 18-31) plumbing (58; Figure 4; column 7; lines 18-56) arrangement, the one or more cleaning gas (column 4, lines 18-31) distribution channels (54,56; Figure 4; column 7; lines 18-56) and the cleaning gas (column 4, lines 18-31) injection ports (44a, 44b; Figure 4; column 7; lines 18-56). Applicant's claim requirements of "so as to deliver a greater concentration of cleaning gas towards cooler elements of the processing chamber than towards warmer elements of the processing chamber during cleaning processes", and assigning

gas identities as “cleaning gas” and “process gas” to specific ports and plumbing are claim requirements of intended use in the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02). Additionally, When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01).

van Os further teaches:

- i. The system (Figure 1; column 3; lines 30-67) of claim 22, wherein the plurality, of cleaning gas (column 4, lines 18-31) injection ports (44a, 44b; Figure 4; column 7; lines 18-56) include a first subset (44a; Figure 4; column 7; lines 18-56) of cleaning gas (column 4, lines 18-31) injection ports (44a, 44b; Figure 4; column 7; lines 18-56) oriented at a first angle with respect to the walls of the processing chamber (16; Figure 2,4; column 3; lines 18-67) and second subset (44b; Figure 4; column 7; lines 18-56) of cleaning gas (column 4, lines 18-31) injection ports (44a, 44b; Figure 4; column 7; lines 18-56) oriented at a second angle with respect to the walls of the processing chamber (16; Figure 2,4; column 3; lines 18-67), as claimed by claim 23

- ii. The system (Figure 1; column 3; lines 30-67) of claim 22, wherein the cleaning gas (column 4, lines 18-31) source (76; Figure 4) is configured to generate reactive fluorine species (column 4, lines 18-31), as claimed by claim 24.
- iii. The system (Figure 1; column 3; lines 30-67) of claim 22, wherein the cleaning gas (column 4, lines 18-31) source (76; Figure 4) is configured to generate a reactive cleaning gas (column 4, lines 18-31) for cleaning byproducts of film generation, as claimed by claim 25. Applicant's claim requirement of "for cleaning byproducts of film generation" is a claim requirement of intended use in the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).
- iv. The system (Figure 1; column 3; lines 30-67) of claim 4, further including internal plumbing (58; Figure 4; column 7; lines 18-56) coupling the cleaning gas (column 4, lines 18-31) distribution channels (54,56; Figure 4; column 7; lines 18-56) to the cleaning gas (column 4, lines 18-31) source (76; Figure 4) within the wall of the processing chamber (16; Figure 2,4; column 3; lines 18-67), as claimed by claim 7. It is assumed that it is the "distribution channels", not the "cleaning gas source" that is "within the wall of the processing chamber" as supported by Applicant's Figures.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 8, 9, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over van Os; Ron et al. (US 5792272 A) in view of Zhao; Jun et al. (US 5853607 A). van Os is discussed above. van Os does not teach:
 - i. The system (Figure 1; column 3; lines 30-67) of claim 22, wherein the cross-sections of the cleaning gas (column 4, lines 18-31) distribution channels (54,56; Figure 4; column 7; lines 18-56) are ten or more time greater than the cross-sections of the cleaning gas (column 4, lines 18-31) injection ports (44a, 44b; Figure 4; column 7; lines 18-56), as claimed by claim 26
 - ii. The system (Figure 1; column 3; lines 30-67) of claim 7, further including a plurality of channel openings coupling the internal plumbing (58; Figure 4; column 7; lines 18-56) to the cleaning gas (column 4, lines 18-31) distribution channels (54,56; Figure 4; column 7; lines 18-56), as claimed by claim 8
 - iii. The system (Figure 1; column 3; lines 30-67) of claim 4, further including a chamber collar separating the lid (10+17+40-15; Figure 2,3a,4; column 3; lines 18-67) of the chamber (16; Figure 2,4; column 3; lines 18-67) from the wall of the processing chamber (16; Figure 2,4; column 3; lines 18-67) and including internal plumbing (58; Figure 4; column 7; lines 18-56) coupling the cleaning gas (column 4, lines 18-31) distribution channels (54,56; Figure 4; column 7; lines 18-56) to the cleaning gas (column 4, lines 18-31) source (76; Figure 4), as claimed by claim 9

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Zhao teaches a similar substrate processing system (Figure 1) including a chamber collar (120; Figure 1) separating the lid (122; Figure 1) from the wall of the processing chamber (221+134; Figure 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Zhao's chamber collar (120; Figure 1) to van Os's apparatus, further, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reproduce apparatus parts in multiplicity.

Motivation to add Zhao's chamber collar (120; Figure 1) to van Os's apparatus is for electrostatically isolating and/or thermally insulating van Os's chamber parts as taught by Zhao (column 7, line 65 – column 8, line 11). Further, it is well established that the duplication of parts is obvious (In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960) MPEP 2144.04).

Response to Arguments

5. Applicant's arguments with respect to claims 7-9, 22-26 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272-1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1792 art unit is (571) 273-8300. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.

/Rudy Zervigon/

Primary Examiner, Art Unit 1792

Application Number**Application/Control No.**

10/678,989

Examiner

Rudy Zervigon

**Applicant(s)/Patent under
Reexamination**

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